Proceedings 5th World Rabbit Congress, 25-30 July 1992, Corvallis – USA, 1544-1599.

Draft Proposal

PROPOSITION TO CLASSIFY ANGORA RABBIT FLEECE

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PREAMBLE

Neither national nor international standard or specification have been published on this specific topic before this proposition.

It has been set up at europeen level, in connection with :

1°) EEC members taking part in the round table organized during the 4th International Rabbit Congress in BUDAPEST about this topic on the 12th of October 1988 : Dr SCHLOLAUT (Hessische Landesanstalt für Tierzucht, Deutschland), Mr SANDFORD (Private Chairman NFU Committee, UK), Prof. Dott.T.AUXILIA (Instituto di Ricerche e Sperimentazione Laviera "O.Rivetti", Italia), MM. SCIUMBATA and GROSSI (Italia Angora, Italia), Dott. M. GIOVANNOLI (ANCI.AIA, Italia), MM. J.L. VRILLON and R.G. THEBAULT (Institut National de la Recherche Agronomique, France).

2°) Herr W. SCHEURER (Firmen Gruppe Scheurer, Medima-Werke, Deutschland).

3°) Dott. L. GALLICO (Instituto di Ricerche e Sperimentazione Laniera "O.Rivetti", Italia).

4°) MM C. SERGENT, C. JULIA, H. MERIC (Institut Textile de France-Sud, France).

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INTRODUCTION

Names, designations and marks guaranteeing the quality and classification of angora rabbit fleece are different according to the country of production. This situation breeds conflicts or misunderstanding between angora traders and manufacturers and can lead to fraudulent practice.

The purpose of this paper is to specify as accurately as possible different grades of raw angora wool with technical criteria.

I - PURPOSE

Present norm specifies what is angora rabbit wool and gives methods of checking the physical characteristics of the fiber. They set up a grading system based on these characteristics.

II - APPLICATION FIELD

This grading system is to be applicable only to raw hair sheared or plucked from angora rabbits.

Hair produced by common rabbits is not included in this grading system.

Even so, manufactured material (regenerated fibers, fibers of which the origin can be yarn, fabric, or knitts) are not able to be classified according to the present method.

III - REFERENCES

3.1. - Microscopic observation : methodology to be followed to establish the bristle rate in a lock (annex n° 1).

3.2. - Microscopic observation : methodology to be followed to establish the rate of whole bristles out of the total number of bristles (annex n° 2).

3.3. - Methodology to establish obvious height of undercoat (annex n°3).

3.4. - Methodology to establish the length of bristles and other angora fibers with comb sorter (annex n° 4 - NF.G.07.060).

3.5. - Grading and designation of textile fibers produced by mammals (ref.ISO.38.18.1.SEPT.1977 N4)

IV - DEFINITIONS

Common rabbit :
Oryctolagus Cuniculus Linné 1758.
Wild or domestic rabbit without any coat modifying gene. Common coat is set up from 3 kind of hair :
- the **bristle** (thick and tight hair with body diameter over 30 μm)
- the **awn** (medium hair with a thick and tight top and a thin curly body)
- the **down** (thin and curly hair from the top to the bottom).

The three kinds of hair are grown from hair follicles during a cycle of a working period called anagen and a resting period called telogen.
For the common rabbit, the anagen period is no longer than 7 weeks, so the down length never exceeds 30 mm.

Angora rabbit :
Oryctolagus Cuniculus Linné 1758 Angorensis.
Domestic rabbit with a recessive and autosomal gene modifying the working cycle of the hair follicles on the body except the head and legs. Thus, the anagen period is over 7 weeks, and the down length is always over 30 mm and the bristle length over 50 mm.

Hair of angora rabbit, WA :
According to ISO definition for mammals textile fibers, on the one, to the previous definition, on the other hand, we reserve the name of ANGORA for angora rabbit hair which can be sorted from the common rabbit hair. In fact angora is kept for hair including down of at least 30 mm length (or height). Harvested hair from angora rabbits of which the length is under 30 mm will be called "rabbit hair" with the code HK.

N.B. : in modern lines of angora rabbit the proportion of hair under 30 mm varies between 0 and 5 per cent.

Bristle :
A bristle is an angora rabbit hair over 50 mm length with a body diameter over 30 μm and at least 3 joined medulla canals, side by side.

Whole bristle :
A whole bristle is a bristle with a pointed top.

Medulla canal :
Lacunal part in the middle of the hair. Air vesicles can be in one pile, one above the other in the case of down. Awn bodies are built with two joined piles. Heads or top of awns and body bristles have always 3 or more piles or medulla canals. The number of medulla canals can be listed under microscopic observation of cross-sections of hair.

V - SYMBOLS AND ABREVIATIONS

I.S.O. (International Standard Organization) and AFNOR (Association Française de Normalisation G 00 004 April 89) codification of mammal textile fibers is made up of two letters.
The application for the rabbit :

1st letter	:	kind of fiber
W	:	wool
H	:	hair
2nd letter	:	animal producing the fiber
A	:	Angora rabbit
K	:	(kaninchen) common rabbit

A 3rd letter is added in order to qualify the aspect of the fleece :

J	:	jarreux : angora with many entire bristles
W	:	woolly : other angora
F	:	felted : clean angora wool
S	:	soiled : angora

Numbers 1 and 2 are in connection with the length or height.

STANDARDS AND SPECIFICATIONS

ANGORA JARREUX WA J			ANGORA WOLLY WA W		
Code "J" is kept for clean and non felted angora : - with bristle rate in the lock over 0,8 per cent (annex 1) - with complete bristle rate in the bristle population over 70 per cent (annex 2) - with less than 1 % of fibers shorter than 15 mm. (annex 4)			Code W is kept for clean and non felted angora when the 3 conditions opposite are not applicable		
Obvious length or height of down (annex 3)	Comb sorter (annex 4) Hauteur Barbe	name	Obvious length of down	Comb sorter (annex 4) Hauteur Barbe	name
> 50 mm 30 - 50 mm	> 50 mm > 55 mm 25-50 28-55	WA J1 WA J2	> 50 mm 30 - 50 mm	> 45 mm > 48 mm 23-45 26-48	WA W1 WA W2

Angora rabbit hair not meeting these conditions is classified as follows :

NAME	CHARACTERISTICS
HK	Downs < 30 mm
WA F	Clean, felted > 30 mm
WA S	Soiled, > 30 mm

SUMMARY

Standards of raw angora wool (code WA)
J1, J2, W1, W2, F, S

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ANNEX N° 1

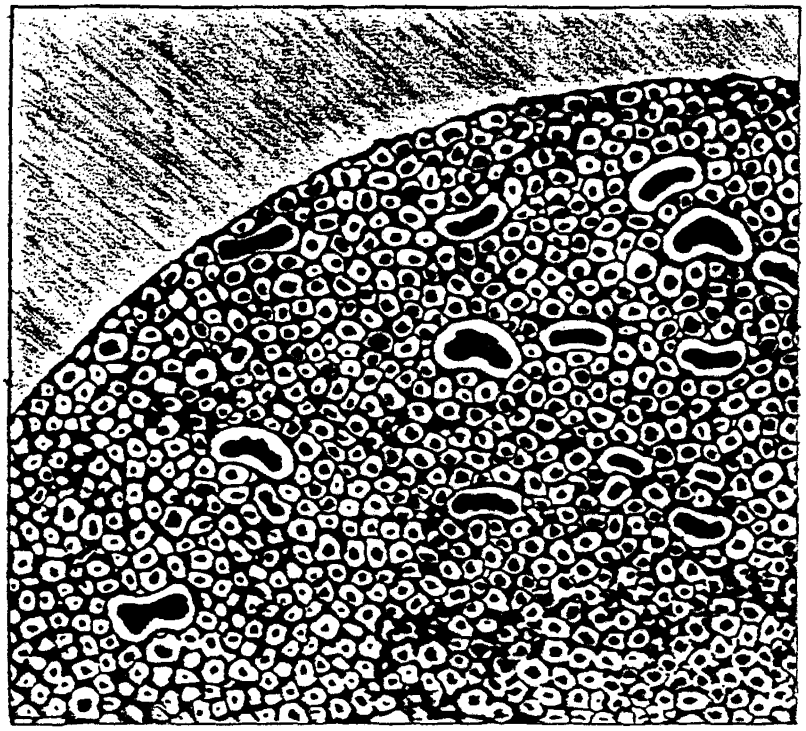
Methodology to set up the bristle rate of a lock

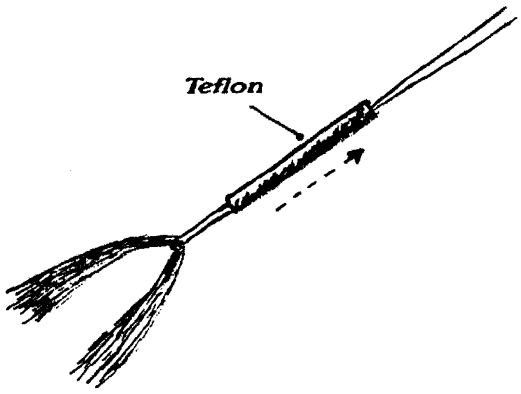
A lock of angora wool is made up from a sample collected in a textile ball laid down by International Wool Textile Organization (IWTO 26-74). It is impregnated in a fixing liquid and slipped into a teflon tube of which the inside and outside diameter are respectively 1,60 mm and 1,75 mm, tube length of 5 mm.

The teflon tube is then cut with a razor blade in a Fibrotome Lhomargy, each section is of 60 μm thickness. In general, 4 sections per sample are cut. Then we put the section between a slide and coverglass in the same fixing liquid as for the tube, under a microscope (magnification power of x 500). The picture is registered by a camera, and computed through VISILOG 3.6.

Fibers on the whole section of which FERET diameter are over 30 μm are counted. Then the total number of fibers on the whole section is counted . In the case of poor quality over the whole section, a portion of the section can be chosen . If the chosen portion is more than 20 % of the whole surface, it is possible to calculate the total number of the fibers. (Total number of cut fibers is about 5000. Considering the fold when slipping the sample into the tube, 2500 different fibers are observed).
From the number of sections over 30 μm (bristles)(n) and total number of sections (N), the bristle rate in the lock (BR) can be fixed.

$$\frac{n \times 100}{N} = BR$$





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ANNEX N° 2

Methodology to set up the rate of whole bristles out of the total number of bristles

Following the sampling taken up, the uncurled hair are withdrawn from the lock with tweezers and looked at through a microscope (magnification power x 10). Every bristle seen with a pointed top is counted as a whole bristle observed.

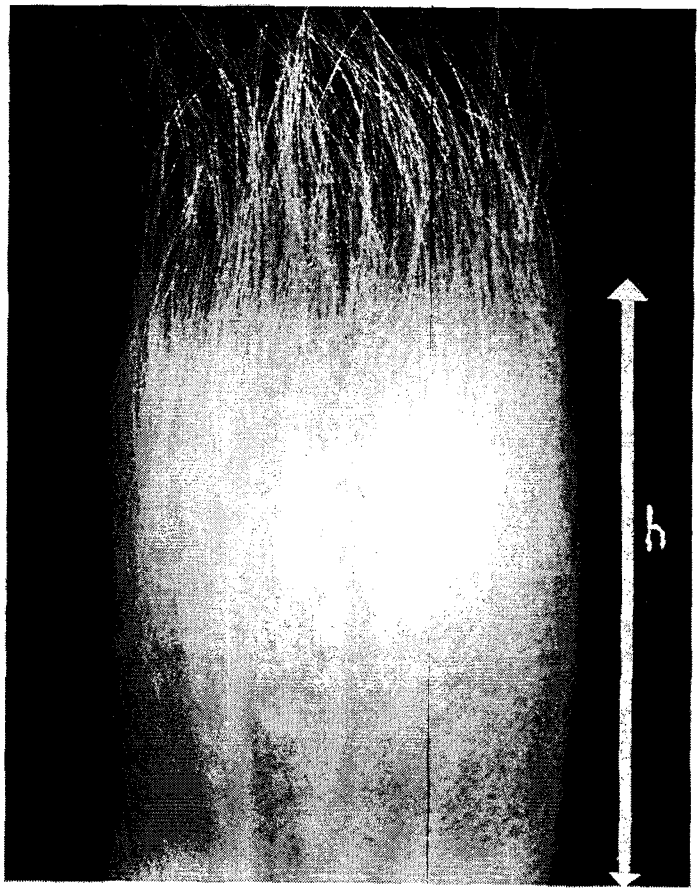
At least, 100 bristles per sample must be observed.

The number of whole bristles (b) out of the total number of observed bristles (B) gives the percentage in the sample (WB).

$$\frac{b \times 100}{B} = WB$$

ANNEX N° 3

Methodology to set up obvious height of undercoat



w a J 1